

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/509108INTERNATIONAL APPLICATION NO
PCT/DE98/02741INTERNATIONAL FILING DATE
**16 September 1998
(16.09.98)**PRIORITY DATE CLAIMED.
**20 September 1997
(20.09.97)**TITLE OF INVENTION
METHOD FOR PLAYING A RECORDING MEDIUMAPPLICANT(S) FOR DO/EO/US
MAIER, Jens and FREITAG, Thomas

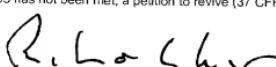
Applicant(s) herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information

1. This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. This is an express request to begin national examination procedures (35 U.S.C. 371(f)) immediately rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. has been transmitted by the International Bureau.
 - c. is not required, as the application was filed in the United States Receiving Office (RO/US)
6. A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. have been transmitted by the International Bureau.
 - c. have not been made; however, the time limit for making such amendments has NOT expired
 - d. have not been made and will not be made.
8. A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)) (UNSIGNED).
10. A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. A **FIRST** preliminary amendment.
- A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. A substitute specification.
15. A change of power of attorney and/or address letter.
16. Other items or information: International Search Report, Preliminary Examination Report and PCT/RO/101.

Express Mail No.: **EL179950665us**

U.S. APPLICATION NO if known, see 37 CFR 1.5 09/509108	INTERNATIONAL APPLICATION NO PCT/DE98/02741	ATTORNEY'S DOCKET NUMBER 10191/1316		
17. <input checked="" type="checkbox"/> The following fees are submitted: Basic National Fee (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or JPO \$840.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) \$670.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$760.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$970.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$96.00		CALCULATIONS PTO USE ONLY		
ENTER APPROPRIATE BASIC FEE AMOUNT =		\$ 840		
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).		\$		
Claims	Number Filed	Number Extra	Rate	
Total Claims	5 - 20 =	0	X \$18.00	\$0
Independent Claims	1 - 3 =	0	X \$78.00	\$0
Multiple dependent claim(s) (if applicable)			+ \$260.00	\$
TOTAL OF ABOVE CALCULATIONS =		\$840		
Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).		\$		
SUBTOTAL =		\$840		
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).		\$		
TOTAL NATIONAL FEE =		\$840		
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property		\$		
TOTAL FEES ENCLOSED =		\$840		
		Amount to be: refunded \$ charged \$		
a. <input type="checkbox"/> A check in the amount of \$ _____ to cover the above fees is enclosed.				
b. <input checked="" type="checkbox"/> Please charge my Deposit Account No. <u>11-0600</u> in the amount of \$840.00 to cover the above fees. A duplicate copy of this sheet is enclosed.				
c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>11-0600</u> . A duplicate copy of this sheet is enclosed.				
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.				
SEND ALL CORRESPONDENCE TO: Kenyon & Kenyon One Broadway New York, New York 10004		 SIGNATURE NAME <u>Richard L. Mayer, Reg. No. 22,490</u> DATE <u>3/20/02</u>		

[10191/1316]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Jens MAIER and Thomas FREITAG
Serial No. : To Be Assigned
Filed : Herewith
For : METHOD FOR PLAYING A RECORDING MEDIUM
Examiner : To Be Assigned
Group Art Unit : To Be Assigned

Assistant Commissioner for Patents
Washington, DC 20231

PRELIMINARY AMENDMENT

Sir:

Kindly amend the above-identified application before examination
as follows:

IN THE SPECIFICATION:

On page 1, delete line 1, and insert:

- - Background Information - -

On page 1, line 2, insert:

- - A method and a device for storing TOC (table of contents) information of a storage medium are known from the publication Patent Abstracts of Japan, Vol. 097, No. 008, August 29, 1997 and JP 09106659A. The total number of music titles and the start/stop addresses of the music titles are stored in a run-in area of the storage medium in the form of TOC information. These addresses are provided in the form of a combination of multiple time units, namely minutes, seconds, and frames. Depending on the number of music titles stored on the storage medium, the addresses formed by the time units are stored more or less precisely in a read/write memory after inserting the storage medium designed as a compact disc into a player. - -

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On page 1, line 5, change "known from" to - -described in- -.

On page 1, line 6, change "Patent 38 07 181 A1" to - - Patent No.
38 07 181- -.

On page 2, line 1, change "Advantages of the Invention" to
- -Summary Of The Invention- -.

On page 2, lines 3 and 4, delete "having the features of the main
claim".

On page 2, delete lines 25-28.

On page 2, line 29, change "advantages" to - -advantage- -.

On page 3, delete lines 14-27 and insert:
- -Brief Description Of The Drawings

Figure 1 shows a cross-section of a recording medium designed as an optical
storage disc.

Figure 2 shows a block diagram of a player with the recording medium inserted.

Figure 3 shows a flowchart for evaluating an address area on a recording
medium

Figure 4 shows a flowchart for selecting a title.

Detailed Description- -.

On page 9, line 1, change "Patent Claims" to
- -What Is Claimed Is:--.

IN THE CLAIMS:

Please cancel original claims 1-4 and please cancel substitute claim 1, without prejudice.

Please add the following new claims:

5. (New) A method for playing a recording medium in a player, the recording medium having a run-in area and at least one address area stored in the run-in area, the at least one address area containing at least one address of a beginning of a title stored on the recording medium in the form of a combination of multiple time units, the player having a read device and a memory, the method comprising the steps of:

when the at least one address area is read out, converting the at least one address of the beginning of the title to a start time in the form of exactly one time unit, the start time substantially corresponding to a playing time of the recording medium from a beginning of a program area to a beginning of an addressed title;

storing the start time in the memory; and

calculating a track jump time, for positioning the read device at the beginning of the title, directly from at least one corresponding start time stored in the memory.

6. (New) The method according to claim 5, wherein the recording medium includes an optical storage disc.

7. (New) The method according to claim 5, further comprising the steps of, if a pause is detected at the beginning of the title, determining a pause duration and adding the pause duration to the start time.

8. (New) The method according to claim 5, further comprising the step of selecting the time unit depending on an accuracy needed for calculating the

track jump.

9. (New) The method according to claim 5, wherein the time unit is one second.

IN THE ABSTRACT:

Delete line 1, and insert:

-- Abstract Of The Disclosure--.

Line 3, delete "(1)".

Line 5, delete "(4)".

Line 6, delete "(1)".

Line 8, delete "(1)".

Line 9, delete "(1)" and "(15)".

Line 10, delete "(9)".

Line 13, delete "(13)".

Line 15, delete "(1)".

Line 16, delete "(9)".

Line 19, delete "(13)".

REMARKS

This Preliminary Amendment cancels, without prejudice, original claims 1-4 and substitute claim 1 in the underlying PCT Application No.

PCT/DE98/02741, and adds new claims 5-9. The new claims conform the claims to U.S. Patent and Trademark Office rules and do not add new matter to the application.

The amendments to the specification and abstract are to conform the specification and abstract to U.S. Patent and Trademark Office rules, and do not introduce new matter into the application.

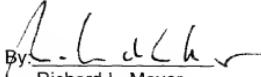
The underlying PCT Application No. PCT/DE98/02741 includes an International Search Report, dated March 15, 1999, a copy of which is included. The Search Report includes a list of documents that were considered by the Examiner in the underlying PCT application.

The underlying PCT Application No. PCT/DE98/02741 also includes an International Preliminary Examination Report, dated August 24, 1999, a copy of which is included, including a translation.

Applicants assert that the present invention is new, non-obvious, and useful. Prompt consideration and allowance of the claims are respectfully requested.

Respectfully Submitted,

KENYON & KENYON

By 
Richard L. Mayer
Reg. No. 22,490

Dated:

3/20/00

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New York, NY 10004
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09/509108

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410 Rec'd PCT/PTO 20 MAR 2000

[10191/1316]

METHOD FOR PLAYING A RECORDING MEDIUM

Background Information

A method for playing CDs in a compact disc player, in which the time prior to starting the playback of a selected music title is shortened, is known from German Patent 38 07 180 A1. A cumulative total time code recorded in the CD lead-in area is read out, and a predetermined code is detected during this read-out. If this predetermined code cannot be detected in the cumulative total time code, a frame calculation is carried out to tell the scanner to jump across the CD tracks and read out a different cumulative total time code, whereupon, after the predetermined code has been read out, necessary data is output from the lead-in area. According to a music selection method, only the total playback time and the total number of music titles are read out from the total time code. After selecting a specific music title, the system calculates an average time per music title from the total playback time and the total number of music titles, and the system searches for the selected music number according to the average time calculated in this manner. The CD player can therefore use a low-capacity memory and can thus be produced economically. According to the system, the scanner is also essentially moved to the position of the selected music title without reading out the addresses provided for the music titles recorded on the CD.

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Advantages of the Invention

The method according to the present invention having the features of the main claim has an advantage over the related art in that the read device can be quickly and precisely positioned at the beginning of a selected title even if the title playback time varies from the average time. The method eliminates the need to determine the average time of each title, and the read device is accurately positioned at the beginning of the title independently of the playback time of the individual titles. Because the at least one address of a title beginning can be converted to and stored as a start time of exactly one time unit, the positioning time, or the number of tracks to be jumped, can be calculated directly from the start time stored in the memory, even if the address of the title beginning stored in the address area of the recording medium is represented by a combination of different time units, for example minutes and seconds. Converting the combined time units to exactly one time unit, for example to seconds, is no longer necessary prior to each read device track jump, thus saving time.

The features described in the subclaims provide advantageous embodiments and refinements of the method indicated in the main claim.

One particular advantages lies in the fact that, if a pause is detected at the beginning of a title, the pause duration is determined and added to the start time. Accounting for a pause at the beginning of a title when determining the start time makes it possible

to further shorten the access time for a selected title, since the read device also jumps the pause at the beginning of the title when performing a track jump, so that a pause of this type does not have to be played or skipped by additional jumps.

A further advantage is that the time unit is selected depending on the accuracy needed for calculating one track jump. This makes it possible to convert the start time directly to the jump time or to the number of tracks to be jumped when the read device performs a track jump without any further loss of time.

Drawing

One embodiment of the present invention is illustrated in the drawing and explained in greater detail in the description below, where Figure 1 shows a cross-section of a recording medium designed as an optical storage disc; Figure 2 shows a block diagram of a player with the recording medium inserted; Figure 3 shows a flowchart for evaluating an address area on a recording medium; and Figure 4 shows a flowchart for selecting a title.

Description of the Embodiment

In Figure 2, 15 designates a player designed as a compact-disc player into which is inserted a recording medium 1, designed as an optical storage disc, for example a compact disc. Compact disc 1 is rotated by a CD drive 7, and the recordings stored on it are scanned, i.e., read out, by a read device 9. Read

device 9 is located on a positioning arrangement 11, which moves read device 9 across compact disc 1 in a radial direction. A signal output 8 of read device 9 is connected to an input 17 of a decoder 12. An output 16 of decoder 12 is connected to an input 18 of an evaluation circuit 10 and to a first input 20 of a memory 13. An output 19 of evaluation circuit 10 is connected to a second input 21 of memory 13 and to an input 23 of an adder 14.

An output 24 of adder 14 is connected to a third input 22 of memory 13. An output 25 of memory 13 is connected to an input 26 of positioning arrangement 11.

Figure 1 shows a cross-sectional view of a recording medium 1 designed as a compact disc. An area 3 in which no data is recorded lies next to a central CD hole 2 for adjusting compact disc 1 on a turntable, which is not illustrated in Figure 2. This area is followed by a run-in area 4 which contains information about the total number of titles recorded on the compact disc, the total playing time of the titles in minutes, seconds, and frames measuring, for example, one 75th of a second, and the address of each title. Each of the addresses stored in run-in area 4 relates to the beginning of one corresponding title and is stored in one or more address areas of run-in area 4. At least one address for one title is provided in run-in area 4. A program area 5 follows run-in area 4 and extends all the way to a CD edge 6, which varies depending on the CD size, the titles being recorded in this program area. The addresses for the beginning of each title are indicated in run-in area 4 in the form of a start time

for the corresponding title in minutes and seconds. The start time corresponds approximately to the playing time of recording medium 1 from the beginning of program area 5 to the addressed title beginning.

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After compact disc 1 is inserted into player 15, the address data is converted to a single time unit the first time read device 9 scans run-in area 4, making it possible to convert each start time to the corresponding, necessary jump time or to the number of tracks to be jumped. The time unit is selected depending on the accuracy needed to calculate one track jump more quickly. Because the jump time accuracy or the number of tracks to be jumped can vary by one second, one second is selected as the time unit.

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The address data scanned by read device 9 in run-in area 4 is first decoded by decoder 12 and then supplied to evaluation circuit 10, which converts the address data for the start times, provided in minutes and seconds, to seconds and stores it in memory 13. The jump time or the number of tracks to be jumped to position read device 9 from run-in area 4 or from any position in program area 5 to the start of the selected title in program area 5 of compact disc 1 can then be calculated by positioning arrangement 11 directly from the start times in seconds stored in memory 13, i.e., without any further time unit conversions. When the user selects a title, the current address of read device 9 is first determined in the form of the playing time from the beginning of program area 5 to the current position of read device 9 by scanning additional encoded information that is stored on

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compact disc 1. The start time of the selected title is
then determined from memory 13, and a relative jump
time or number of tracks to be jumped on compact disc 1
is calculated from this start time and the current
5 address of read device 9. According to the calculated
jump time or the number of tracks to be jumped,
positioning arrangement 11 then moves read device 9 to
the beginning of the selected title on compact disc 1,
and this title is played.

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If decoder 12 detects a pause in the data read by read
device 9 at the beginning of a title, evaluation
circuit 10 determines the pause duration, and adder 14
adds this duration to the corresponding start time
stored in memory 13, so that the next time the user
selects this title, positioning arrangement 11 accounts
for the pause during the track jump, and either the
pause is not played or must be avoided by additional
jumps. This further speeds up access to a title that
begins with a pause.

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Figure 3 shows a flowchart for evaluation circuit 10
when evaluating the addresses read in run-in area 4. At
a program point 100, the address data, i.e., start
times, of the titles recorded in program area 5 of
compact disc 1 are read out of run-in area 4 by read
device 9, then evaluated by decoder 12, and finally
supplied to evaluation circuit 10 as data in the form
of minutes and seconds. At program point 105,
30 evaluation circuit 10 converts these start times to
seconds. At program point 110, the converted start
times are stored in memory 13. The program then leaves
this subroutine.

Figure 4 shows a flowchart for selecting a title. At a program point 200, positioning arrangement 11 determines the current address of read device 9 from the additional encoded information scanned by read device 9 on compact disc 1, converts this address to the seconds time unit and, if the address is not already included in the seconds time unit of the additional encoded data, accesses the start time corresponding to the selected title in memory 13, which is also present in the one-second time unit, and, from this start time and the current address of read device 9, calculates a corresponding jump time or number of tracks to be jumped for positioning arrangement 11 to position read device 9 at the beginning of the selected title.

At a program point 205, positioning arrangement 11 performs a jump based on the calculated jump time or the number of tracks to be jumped before reaching the beginning of the selected title. At a program point 210, evaluation circuit 10 checks whether a pause occurs at the beginning of a title. A pause of this type can, for example, be identified by a special index ID on a corresponding recording track of compact disc 1 and decoded by decoder 12. If so, the sequence branches to program point 230, otherwise it branches to program point 215. At program point 215, selection circuit 10 determines the pause duration. At program step 220, adder 14 adds the pause duration to the corresponding start time in memory 13. At program point 225, the previous start time is overwritten by the new start time resulting from adding the pause duration. The sequence then branches to program point 230. At program

point 230, the recordings of the selected title on compact disc 1 scanned by read device 9 are played by a playback device, which is not illustrated in Figure 2. The program then leaves this subroutine.

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The present invention is not limited to the use of optical storage discs as the recording medium or compact disc players as the player, but instead can be generally applied to all players for recording media on 10 which titles are addressed in the form of start times that are stored on the recording medium.

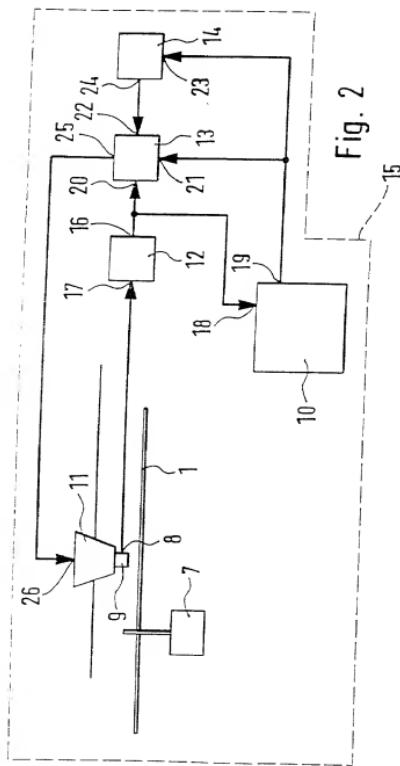
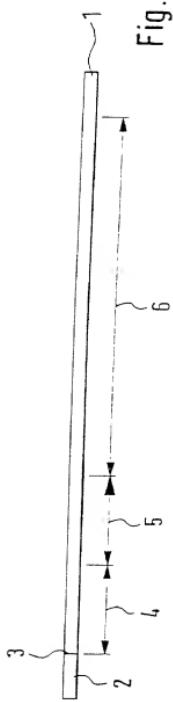
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Patent Claims

1. A method for playing a recording medium (1), in particular an optical storage disc, having at least one address area that is stored in a run-in area (4) of the recording medium (1) and includes at least one address of a beginning of a title stored on the recording medium (1), in a player (15) having a read device (9), characterized in that, when the at least one address area is read out, the at least one address of a title beginning is converted to a start time of exactly one time unit and stored in a memory (13), with the start time corresponding approximately to the playing time of the recording medium (1) up to the addressed title beginning; and the track jump time for positioning the read device (9) at the beginning of the title is calculated directly from the corresponding start time stored in the memory (13).
2. The method according to Claim 1, characterized in that, if a pause is detected at the beginning of the title, the pause duration is determined and added to the start time.
3. The method according to Claim 1 or 2, characterized in that the time unit is selected depending on the accuracy needed for calculating a track jump.
4. The method according to Claim 1, 2 or 3, characterized in that one second is selected as the time unit.

Abstract

A method for playing a recording medium (1), in particular an optical storage disc, used to access titles more quickly. Stored in a run-in area (4) of the recording medium (1) is at least one address area that includes at least one address of a beginning of a title stored on the recording medium (1). The recording medium (1) is played in a player (15) having a read device (9). When the at least one address area is read out, the at least one address of a title beginning is converted to a start time of exactly one time unit and stored in a memory (13), with the start time corresponding approximately to the playing time of the recording medium (1) up to the addressed title beginning. To position the read device (9) at the beginning of the title, the track jump time is calculated directly from the corresponding start time stored in the memory (13).



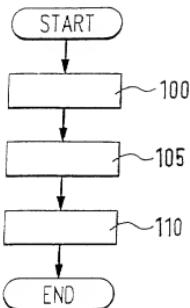


Fig. 3

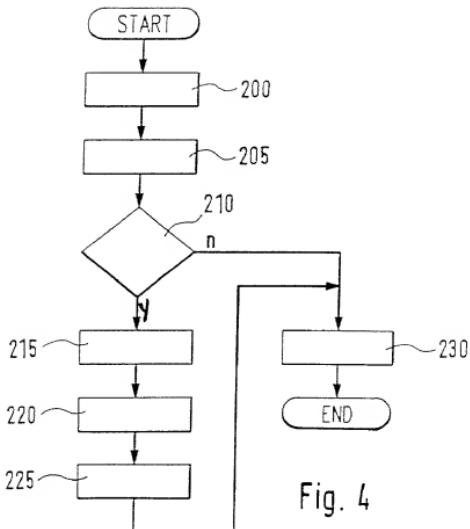


Fig. 4

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COMBINED DECLARATION AND
POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below adjacent to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled "**METHOD FOR PLAYING A RECORDING MEDIUM**", and the specification of which:

- is attached hereto;
- was filed as United States Application Serial No. _____ on _____, 19____ and was amended by the Preliminary Amendment filed on _____, 19____.
- was filed as PCT International Application Number PCT/DE98/02741, on the 16th day of September, 1998.
- an English translation of which is filed herewith.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a). I hereby claim foreign priority benefits under Title 35, United States Code § 119 of any foreign application(s) for patent or inventor's certificate or of any PCT international applications(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

EL179949525US

**PRIOR FOREIGN/PCT APPLICATION(S)
AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. § 119**

Country : Germany

Application No. : 197 41 594.6

Date of Filing: September 20, 1997

Priority Claimed

Under 35 U.S.C. § 119 : [X] Yes [] No

I hereby claim the benefit under Title 35, United States Code § 120 of any United States Application or PCT International Application designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations § 1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

**PRIOR U.S. APPLICATIONS OR
PCT INTERNATIONAL APPLICATIONS
DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. § 120**

U.S. APPLICATIONS

Number :

Filing Date :

**PCT APPLICATIONS
DESIGNATING THE U.S.**

PCT Number :

PCT Filing Date :

I hereby appoint the following attorney(s) and/or agents to prosecute the above-identified application and transact all business in the Patent and Trademark

Office connected therewith.

(List name(s) and registration number(s)):

 Richard L. Mayer, Reg. No. 22,490
Gerard A. Messina, Reg. No. 35,952
_____, Reg. No. _____
_____, Reg. No. _____

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New York, New York 10004

Telephone No.: (212) 425-7200
Facsimile No.: (212) 425-5288

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Full name of inventor Jens MAIER

Inventor's signature  Date 16.03.2000

Citizenship Federal Republic of Germany

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31180 Giessen
Federal Republic of Germany 

Post Office Address Same as above

Full name of inventor Thomas FREITAG

Inventor's signature Thomas Freitag Date 17.03.2000

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